

Serial No.: 10/760,496
Response to Office action of October 9, 2007

Attorney Docket No.: FS-F03224-01OA

Amendment to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1. (currently amended) A photothermographic material comprising an image forming layer containing at least a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent and a binder on the same surface of a support, wherein an application amount of the photosensitive silver halide is 0.5 mol% to 15 mol% per one mol of silver of the non-photosensitive organic silver salt, and the photothermographic material contains:

a compound having an adsorption group to silver halide and a reducing group in a coating amount of 1×10^{-6} mol to 1 mol per one mol of the photosensitive silver halide,

wherein the compound having an adsorption group to silver halide and a reducing group is represented by the following formula (I):

A-(W)_n-B formula (I)

wherein, in the formula, A represents an atomic group containing a group capable of adsorbing to silver halide, W represents a divalent linking group, n represents 0 or 1, and B represents a reducing group,

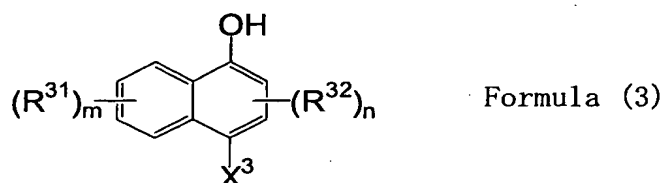
wherein the adsorption group is a heterocyclic group substituted by one or two mercapto groups, a heterocyclic ring containing at least one atom selected from a nitrogen atom, a nitrogen atom containing heterocyclic group having a -NH- group capable to form an imino-silver (>N_{Ag}) as a partial structure of heterocyclic ring, or a heterocyclic ring having quarternalized nitrogen atom,

and the reducing group is a 3-pyrazolidone group;

and a development accelerator, wherein the development accelerator is at least one selected from compound groups represented by the following formulae (1), (2) and (3):

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wherein:

in formula (1), Q^1 represents a 5 to 7 membered unsaturated ring capable of bonding to $NHNH-R^1$ through a carbon atom; R^1 represents a carbamoyl group, an acyl group, an alkoxycarbonyl group, an aryloxycarbonyl group, a sulfonyl group or a sulfamoyl group; and

in formulae (2) and (3), X^2 and X^3 each independently represent a hydrogen atom or a substituent; R^{21} , R^{31} and R^{32} each independently represent a hydrogen atom or a substituent capable of substitution; m and p each independently represent an integer from 0 to 4; and n represents an integer from 0 to 2.

2. (cancelled)

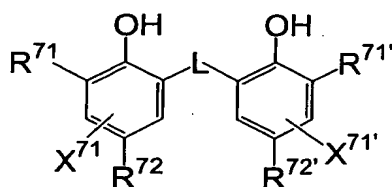
3. (cancelled)

4. (original) The photothermographic material according to claim 1, wherein the reducing agent is represented by the following formula (7):

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Formula (7)

wherein, in formula (7), R⁷¹ and R^{71'} each independently represent an alkyl group having 1 to 20 carbon atoms; R⁷² and R^{72'} each independently represent a hydrogen atom or a group capable of substituting for a hydrogen atom on a benzene ring; X⁷¹ and X^{71'} each independently represent a hydrogen atom or a group capable of substituting for a hydrogen atom on a benzene ring; L represents a -S- group or -CHR⁷³- group; and R⁷³ represents a hydrogen atom or an alkyl group.

5. (original) The photothermographic material according to claim 1, wherein a silver iodide content of the photosensitive silver halide is 5% by mole or more.

6. (original) The photothermographic material according to claim 5, wherein the silver iodide content of the photosensitive silver halide is 40% by mole or more.

7. (original) The photothermographic material according to claim 1, wherein the photothermographic material is exposed to a laser beam.

8. (original) The photothermographic material according to claim 7, wherein the laser beam has a wavelength of 350 nm to 450 nm.

9. (original) The photothermographic material according to claim 7, wherein a light source of the laser beam is a blue laser diode.

10. (previously presented) A photothermographic material comprising, on a support, at least a photosensitive silver halide, a non-photosensitive organic silver salt, a

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reducing agent and a binder, wherein:

1) the photothermographic material contains a compound having an adsorption group to silver halide and a reducing group,

wherein the compound having an adsorption group to silver halide and a reducing group is represented by the following formula (I):

$A-(W)_n-B$ formula (I)

wherein, in the formula, A represents an atomic group containing a group capable of adsorbing to silver halide, W represents a divalent linking group, n represents 0 or 1, and B represents a reducing group,

wherein the adsorption group is a heterocyclic group substituted by one or two mercapto groups, a heterocyclic ring containing at least one atom selected from a nitrogen atom, a nitrogen atom containing heterocyclic group having a $-NH-$ group capable to form an imino-silver ($>NAg$) as a partial structure of heterocyclic ring, or a heterocyclic ring having quarternalized nitrogen atom,

and the reducing group is a 3-pyrazolidone group;

2) the non-photosensitive organic silver salt contains silver behenate in an amount of not less than 80% by mole; and

3) the binder has a glass transition temperature (T_g) of 45°C or less.

11. (original) The photothermographic material according to claim 10, wherein the non-photosensitive organic silver salt contains silver erucate in an amount of from $1.0 \times 10^{-6}\%$ by mole to 0.4% by mole.

12. (original) The photothermographic material according to claim 10, wherein the binder is a polymer latex synthesized by using a polymerization initiator in an amount of 0.3% by weight to 2.0% by weight based on a total amount of monomers.

13. (original) The photothermographic material according to claim 10,

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wherein a silver iodide content of the photosensitive silver halide is 5% by mole or more.

14. (original) The photothermographic material according to claim 13, wherein the silver iodide content of the photosensitive silver halide is 40% by mole or more.

15. (previously presented) A photothermographic material comprising, on a surface of a support, at least a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent and a binder, wherein the photothermographic material contains: a compound having an adsorption group to silver halide and a reducing group, wherein the compound having an adsorption group to silver halide and a reducing group is represented by the following formula (I):

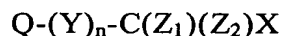


wherein, in the formula, A represents an atomic group containing a group capable of adsorbing to silver halide, W represents a divalent linking group, n represents 0 or 1, and B represents a reducing group,

wherein the adsorption group is a heterocyclic group substituted by one or two mercapto groups, a heterocyclic ring containing at least one atom selected from a nitrogen atom, a nitrogen atom containing heterocyclic group having a -NH- group capable to form an imino-silver (>NAg) as a partial structure of heterocyclic ring, or a heterocyclic ring having quarternalized nitrogen atom,

and the reducing group is a 3-pyrazolidone group;

and at least one compound represented by the following formula (H):



wherein, in formula (H), Q represents an alkyl group, an aryl group or a heterocyclic group; Y represents a divalent linking group; n represents 0 or 1; Z₁ and Z₂ each independently represent a halogen atom; and X represents a hydrogen atom or an electron attracting group.

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16. (original) The photothermographic material according to claim 15, wherein the compound represented by formula (H) has a melting point of 170°C or less.

17. (original) The photothermographic material according to claim 15, wherein Q represents a heterocyclic group in formula (H).

18. (original) The photothermographic material according to claim 15, wherein the compound represented by formula (H) is contained in an amount of 1×10^{-2} mole to 5×10^{-2} mole per one mole of the non-photosensitive organic silver salt.

19. (original) The photothermographic material according to claim 18, wherein the compound represented by formula (H) is contained in an amount of 1×10^{-2} mole to 3×10^{-2} mole per one mole of the non-photosensitive organic silver salt.

20. (original) The photothermographic material according to claim 15, wherein a silver iodide content of the photosensitive silver halide is 5% by mole or more.

21. (original) The photothermographic material according to claim 20, wherein the silver iodide content of the photosensitive silver halide is 40% by mole or more.

22. (previously presented) The photothermographic material according to claim 1, wherein the adsorption group is a heterocyclic group substituted by one or two mercapto groups.

23. (previously presented) The photothermographic material according to

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claim 1, wherein the adsorption group is a nitrogen atom containing heterocyclic group having a -NH- group capable to form an imino-silver ($>N\text{Ag}$) as a partial structure of heterocyclic ring.

24. (previously presented) The photothermographic material according to claim 1, wherein the adsorption group is a heterocyclic ring having quarternalized nitrogen atom.

25. (cancelled)

26. (previously presented) The photothermographic material according to claim 6, wherein the silver iodide content of the photosensitive silver halide is 90% by mole or more.

27. (previously presented) The photothermographic material according to claim 14, wherein the silver iodide content of the photosensitive silver halide is 90% by mole or more.

28. (previously presented) The photothermographic material according to claim 21, wherein the silver iodide content of the photosensitive silver halide is 90% by mole or more.

29. (cancelled)

30. (cancelled)

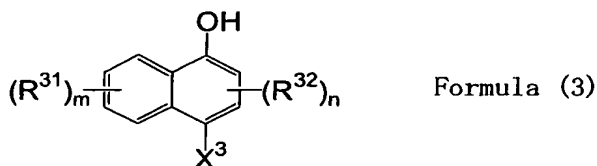
31. (cancelled)

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32. (cancelled)

33. (previously presented) The photothermographic material according to claim 1, wherein the development accelerator is a compound represented by the following formula (3):



wherein in formula (1), X^3 represents a hydrogen atom or a substituent; R^{31} and R^{32} each independently represent a hydrogen atom or a substituent capable of substitution; m represents an integer from 0 to 4; and n represents an integer from 0 to 2.

34. (previously presented) The photothermographic material according to claim 33, wherein a silver iodide content of the photosensitive silver halide is 90% by mole or more.